

What is claimed is:

1. A management system comprising a printing machine, a management apparatus and a maintenance terminal connected to one another over an external network, wherein

5       said printing machine generates use information indicating contents of a printing operation and transmits said generated use information to said management apparatus, and

          said management apparatus receives said use information sent from said printing machine, discriminates whether preventive  
10 maintenance for said printing machine is needed or not in accordance with said received use information, and transmits instruction information instructing preventive maintenance to said maintenance terminal when it is discriminated that said preventive maintenance is needed.

15       2. The management system according to claim 1, wherein said use information generated by said printing machine includes number-of-printouts information indicating a number of sheets printed by said printing operation, and

          said management apparatus memorizes a threshold value of a  
20 predetermined number of printouts in association with said printing machine, and discriminates whether or not preventive maintenance for said printing machine is needed based on a quantity indicated by said number-of-printouts information included in said use information received by said management apparatus and said  
25 threshold value memorized by said management apparatus.

3. The management system according to claim 1, wherein said management apparatus memorizes maintenance field information indicating a field of maintenance which is carried out by a maintenance person who uses a maintenance terminal, specifies said maintenance terminal of said maintenance person who maintains said printing machine, when it is discriminated that said preventive maintenance is needed, based on contents of said preventive maintenance discriminated as necessary and said maintenance field information, and transmits instruction information to said specified maintenance terminal.

4. A management system comprising a printing machine, a user terminal, a management apparatus, a substitute printing machine and a maintenance terminal connected to one another over an external network, wherein

said printing machine generates trouble information indicating contents of a trouble occurred and transmits said generated trouble information to said management apparatus, and

said management apparatus receives said trouble information sent from said printing machine, discriminates whether urgent maintenance for said printing machine is needed or not in accordance with said received trouble information, transmits substitution information of said substitute printing machine to be a substitute output destination to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed, and transmits instruction information instructing collection

of a target print to be printed by said substitute printing machine and urgent maintenance to said maintenance terminal in accordance with transmission of said substitution information.

5       5. The management system according to claim 4, wherein said management apparatus memorizes, beforehand, a driver program which is to be run by said printing machine, and installs said driver program in said user terminal.

6. The management system according to claim 4, wherein said management apparatus memorizes maintenance field information  
10       indicating a field of maintenance which is carried out by a maintenance person who uses a maintenance terminal, specifies said maintenance terminal of said maintenance person who maintains said printing machine, when it is discriminated that said urgent maintenance is needed, based on contents of said urgent maintenance  
15       discriminated as necessary and said maintenance field information, and transmits instruction information to said specified maintenance terminal.

7. A machine management apparatus which is connected to an external printing machine and an external maintenance terminal over  
20       an external network and has:

      a communication control device that receives use information sent from said printing machine; and

      a processor that discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use  
25       information received by said communication control device, and

generates instruction information instructing preventive maintenance to said maintenance terminal when it is discriminated that said preventive maintenance is needed,

whereby said communication control device transmits said  
5 instruction information to said maintenance terminal.

8. The machine management apparatus according to claim 7, further having a memory which stores maintenance field information indicating a field of maintenance which is carried out by a maintenance person who uses a maintenance terminal, and wherein  
10 when having discriminated that said preventive maintenance is needed, said processor specifies said maintenance terminal of said maintenance person who maintains said printing machine, based on contents of said preventive maintenance discriminated as necessary and said maintenance field information, and

15 said communication control device transmits instruction information to said specified maintenance terminal.

9. A machine management apparatus which is connected to an external printing machine, an external user terminal, an external substitute printing machine and an external maintenance terminal  
20 over an external network and is comprised of:

a communication control device that receives trouble information sent from said printing machine; and

a processor that discriminates whether urgent maintenance for said printing machine is needed or not in accordance with said  
25 trouble information received by said communication control device,

generates substitution information of said substitute printing machine,  
which is to be a substitute output destination and is to be transmitted  
to said user terminal which is using said printing machine, when it is  
discriminated that said urgent maintenance is needed, and generates  
5 instruction information instructing collection of a target print to be  
printed by said substitute printing machine and urgent maintenance in  
accordance with transmission of said substitution information,

whereby said communication control device transmits said  
substitution information to said user terminal which is using said  
10 printing machine and transmits said instruction information to said  
maintenance terminal.

10. The machine management apparatus according to claim 9,  
further having a memory which stores maintenance field information  
indicating a field of maintenance which is carried out by a

15 maintenance person who uses a maintenance terminal, and wherein

when having discriminated that said urgent maintenance is  
needed, said processor specifies said maintenance terminal of said  
maintenance person who maintains said printing machine, based on  
contents of said urgent maintenance discriminated as necessary and  
20 said maintenance field information, and

said communication control device transmits instruction  
information to said specified maintenance terminal.

11. A maintenance work instructing method in an apparatus  
connected to a printing machine, a user terminal, a substitute printing  
25 machine and a maintenance terminal over a network, comprising:

a use information receiving step which receives use information sent from said printing machine;

a discrimination step which discriminates whether preventive maintenance for said printing machine is needed or not in accordance  
5 with said use information received in said use information receiving step; and

an instruction information transmitting step which transmits instruction information instructing preventive maintenance to said maintenance terminal when it is discriminated in said discrimination  
10 step that said preventive maintenance is needed.

12. A maintenance work instructing method in an apparatus connected to a printing machine, a user terminal, a substitute printing machine and a maintenance terminal over a network, comprising:

a trouble information receiving step which receives trouble  
15 information sent from said printing machine;

a discrimination step which discriminates whether urgent maintenance for said printing machine is needed or not in accordance with said trouble information received in said trouble information receiving step;

20 a substitution information transmitting step which transmits substitution information of said substitute printing machine to be a substitute output destination to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed; and

25 an instruction information transmitting step which transmits

instruction information instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance to said maintenance terminal in accordance with transmission of said substitution information in said substitution information transmitting  
5 step.

13. A computer readable recording medium having a program recorded therein that allows a computer having a communication control device to function as a machine management apparatus which is connected to an external printing machine and an external  
10 maintenance terminal over an external network and which:

receives use information sent from said printing machine;  
discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device, and generates  
15 instruction information instructing preventive maintenance to said maintenance terminal when it is discriminated that said preventive maintenance is needed; and

transmits said instruction information to said maintenance terminal.

20 14. A computer readable recording medium having a program recorded therein that allows a computer having a communication control device to function as a machine management apparatus which is connected to an external printing machine, an external user terminal, an external substitute printing machine and an external  
25 maintenance terminal over an external network and which:

receives trouble information sent from said printing machine;  
discriminates whether urgent maintenance for said printing  
machine is needed or not in accordance with said trouble information  
received by said communication control device;

5 generates substitution information of said substitute printing  
machine, which is to be a substitute output destination and is to be  
transmitted to said user terminal which is using said printing machine,  
when it is discriminated that said urgent maintenance is needed;

generates instruction information instructing collection of a  
10 target print to be printed by said substitute printing machine and  
urgent maintenance in accordance with transmission of said  
substitution information;

transmits said substitution information to said user terminal  
which is using said printing machine; and

15 transmits said instruction information to said maintenance  
terminal.

15. A computer data signal buried in a carrier and expressing  
a program that allows a computer having a communication control  
device to function as a machine management apparatus which is  
20 connected to an external printing machine and an external  
maintenance terminal over an external network and which:

receives use information sent from said printing machine;  
discriminates whether preventive maintenance for said printing  
machine is needed or not in accordance with said use information  
25 received by said communication control device, and generates



instruction information instructing preventive maintenance to said maintenance terminal when it is discriminated that said preventive maintenance is needed; and

transmits said instruction information to said maintenance  
5 terminal.

16. A computer data signal buried in a carrier and expressing a program that allows a computer having a communication control device to function as a machine management apparatus which is connected to an external printing machine, an external user terminal,  
10 an external substitute printing machine and an external maintenance terminal over an external network and which:

receives trouble information sent from said printing machine;  
discriminates whether urgent maintenance for said printing machine is needed or not in accordance with said trouble information  
15 received by said communication control device;

generates substitution information of said substitute printing machine, which is to be a substitute output destination and is to be transmitted to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed;  
20 generates instruction information instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance in accordance with transmission of said substitution information;

transmits said substitution information to said user terminal  
25 which is using said printing machine; and

transmits said instruction information to said maintenance terminal.